

ABSTRACT

An arrangement of lenses for a 100X, oil immersion microscope objective is presented. The new configuration gives a flat field of view with diffraction limited performance all over the field. The new optical arrangement broadly comprises a first lens element having at least one first lens having a positive power, with the radius of curvature of the surface of the first lens element proximate to an object plane less than or approximately equal to the radius of curvature of the surface of the first lens element distal to the object plane, a negative power second lens element having at least one second lens, a positive power third lens element having at least one lens, a negative power fourth lens element having at least one lens, a positive power fifth lens element having at least one lens, a positive power sixth lens element having at least one lens, a positive power seventh lens element having at least one lens with the radius of curvature of the surface of the seventh lens element proximate to the object plane less than or approximately equal to the radius of curvature of the surface of the seventh lens element distal to the object plane, and a positive power eighth lens element having at least one lens with the optical arrangement arrayed such that the distance from the first lens element to the second lens element is sufficient to reduce a ray height of a light ray entering the second lens element from the ray height of the light ray entering the first lens element and, in addition, arrayed such that the distance from the fifth lens element to the sixth lens element is sufficient to increase the ray height of the light ray entering the sixth lens element from the ray height of the light ray entering the first lens element.